

FIGURE 6: VISUAL RECEPTORS PLAN – OFF-SITE CABLE ROUTE CORRIDOR AND NATIONAL GRID BICKER FEN SUBSTATION EXTENSION WORKS



The assessment has reviewed the local PRoWs, shown on **Figure 6**, located at varying distances and offering a variety of views. Those that have been judged to be relevant to this process have been listed below:

- Public Footpath SKym/2/1 along the western section of Head Dike.
- Public Footpath Heck/15/1 between Sidebar Lane and the Order limits
- Public Footpath Swhd/14/1 leading from Swineshead Bridge along the railway line.
- Public Footpath Ambe/4/1, at Claydike Bank, near Amber Hill, Sutterton Fen.

Based on the preliminary works, further desktop and field work, and consultation, a total of 23 no. of viewpoints have been selected. They include locations discussed with North Kesteven District Council, Boston Borough Council, and Lincolnshire County Council during the consultation process through the Scoping Report, and PEIR stage. The identified viewpoints are not intended to cover every possible view of the Proposed Development, but rather they have been selected to be representative of a range of receptor types. The viewpoint locations are shown on **Figure 7**.

ASSESSMENT OF POTENTIAL FOR LIKELY SIGNIFICANT EFFECTS

Construction Phase

This Chapter of the ES (document reference 6.1.6) has concluded that the construction of the proposed Energy Park would bring about major beneficial significant effects upon the PRoW resource and hedgerow vegetation. No other landscape elements or features would be significantly affected by the Proposed Development during its construction phase.

In terms of landscape character, it has been assessed that the construction stage would result in temporary

short term significant adverse effects upon the landscape associated with the Proposed Development and its immediate context up to approximately 500m away. Beyond this distance, the effects have been assessed as diminishing to minor, thus not significant, effects. Therefore, the wider surrounding landscape of The Fens Regional Landscape Character Type and the Fenland Landscape Character Sub-Area and the LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen, would be subject to minor not significant effects.

The assessment has concluded that the construction stage of the Proposed Development would bring about major and significant effects upon the receptors at East Heckington, road users present along the highly localised sections of Sidebar Lane, those traveling along the railway line west from Swineshead Bridge as they cross the Off-site Cable Route Corridor and its immediate area, and users of Public Footpath SKym/2/1, Public Footpath Heck/15/1 (including its reconnected eastern section), and Public Footpath Swhd/14/1.

The identified effects have been considered to be highly localised and limited to certain static viewpoints and sections of the identified PRoWs and largely experienced in very close to close range views, of up to 500m away.

Operational Phase

The Energy Park of the Proposed Development has been assessed as potentially causing geographically highly limited yet significant adverse effects upon the character of The Fens Regional Landscape Character Type and the associated Fenland Landscape Character Sub-Area (identified in the published North Kesteven Landscape Character Assessment), within the Energy Park itself and its immediate landscape context of up to approximately 500m.

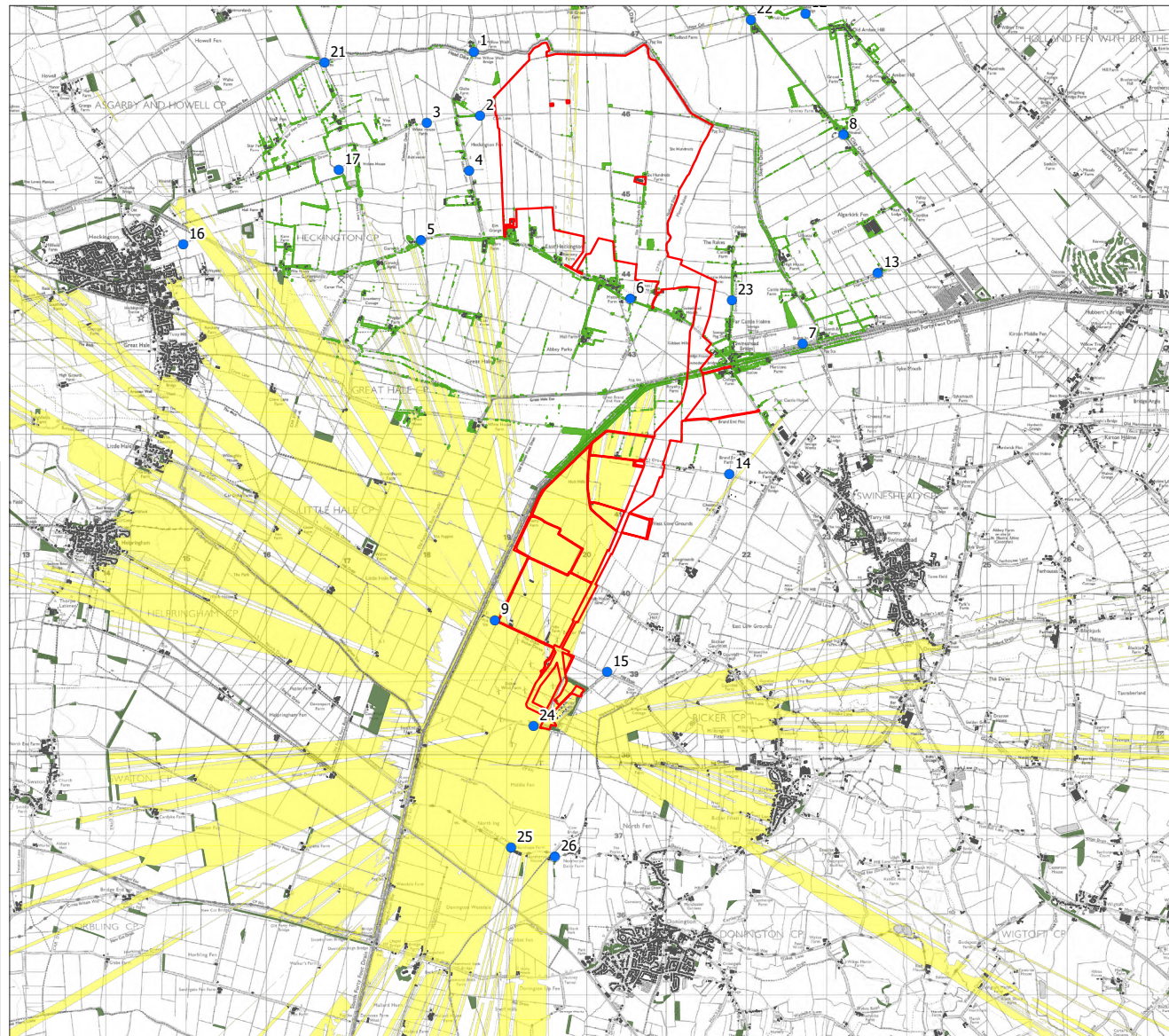
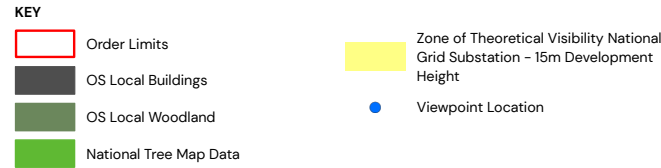


FIGURE 7: SCREENED ZONE OF THEORETICAL VISIBILITY – SOLAR AREAS AND PROPOSED VIEWPOINT LOCATIONS PLAN



Beyond the immediate context, the approximate 500m distance from the Energy Park, the effects upon the character of the local landscape: the regional LCT The Fens and the associated Fenland Landscape Character Sub-Area, have been assessed minor, thus not significant.

No other landscape character receptors have been assessed as subject to significant adverse effects during the operational phase of the Proposed Development.

With regard to the visual receptors, the operational stage of the Proposed Development has been considered to bring about significant adverse effects upon the receptors within East Heckington, road users travelling along the central and southern section of Sidebar Lane and the following PRoWs:

- Public Footpath SKym/2/1.
- Public Footpath Heck/15/1 (including its reconnected eastern section).
- Permissive path within the Energy Park.

In terms of static receptors, the following viewpoints have been assessed as potentially experiencing significant adverse effects during the operational phase of the Energy Park, (shown on **Figure 7**):

- Viewpoint 1.
- Viewpoint 2.
- Viewpoint 4.
- Viewpoint 6.

See VP2a below as an example of the proposed development in year 1 and year 5 when proposed new planting has been able to establish.

No other visual receptors have been assessed as experiencing significant adverse effects during the operational phase of the Proposed Development.

Mitigation and Enhancement

The Proposed Development has incorporated a number of built-in mitigation measures developed through the iterative design process and additional mitigation measure addressing the assessment of potential significant effects carried out in this Chapter of the ES (document reference 6.1.6). From an LVIA point of view the following mitigation measures are considered to be the most relevant:

Embedded mitigation measures:

- Offsets from internal and boundary watercourses and vegetation are proposed to safeguard these features and to ensure continued maintenance access.
- Increased offset from properties No. 1 – No. 12 Council House in East Heckington, by approximately 250m, reducing the visual effects.
- Decrease in height of the solar modules from 4.5m to 3.5m in the northern and eastern parts and 3m in the western and southern parts of the Energy Park i.e., those closest to the residential receptors. Thus, reducing the visibility of the proposed solar modules.
- The proposed 132kV substations have been removed from the design of the Energy Park.
- Change to a single centralised Onsite Substation and Energy Storage System, increasing the distance to nearest residential receptors and the settlement of East Heckington.
- The indicative 132kV overhead cable route has been removed from the design of the Energy Park to reduce the degree of change and avoid potentially significant effects upon the higher number of receptors.



LVIA PHOTOMONTAGES: VIEWPOINT 2A: EXISTING



LVIA PHOTOMONTAGES: VIEWPOINT 2A: YEAR 1



LVIA PHOTOMONTAGES: VIEWPOINT 2A: YEAR 5

- Utilising the existing built form and tree vegetation associated with Six Hundreds Farm to provide context and screening, thus helping to assimilate this part of the Proposed Development into the landscape and views.
- The National Grid Bicker Fen Substation Extension Works are proposed to be located towards the south western corner of the existing National Grid Bicker Fen Substation. The context and surrounding tree vegetation greatly reduce the anticipated landscape character and visual effects.
- Use of metal mesh perimeter fencing (so-called '358' welded mesh panels to BS 1722-14 Fences) instead of palisade fencing. Optional, the use of deer style fencing could be considered, but given the distance from the closest residential receptors it is unlikely that such design change would reduce the anticipated scale of effects.

Additional mitigation measures:

- New hedgerow of varied height proposed along the perimeter of the Energy Park. The majority of the proposed perimeter hedgerows would be generally maintained at approximately 3m – 3.5m height,
- **New woodland shelter belt equivalent to 0.42ha in Field G8 in the north-western corner of the Energy Park to offset the potential woodland lost south of Bicker Fen Substation through the Extension Works,**
- Taller section of perimeter hedgerow, approximately 5m in height, have been introduced to resemble overgrown hedgerows, and echo the character and screening potential of the existing hedgerows present along Six Hundreds Drove.
- **Should a GIS system be used within the Additional Works area south of the Substation – AW1, then it is recommended that the barn is painted muted matt and recessive green colour, based on the palette**

of greens prevailing in the local landscape, such as RAL6002 Leaf Green, or similar. It is recommended that the roof of the barn is painted in light grey / goose grey as in medium to long range views it would largely be visible against the sky.

In addition, the following enhancements have been incorporated into the Proposed Development:

- A small area of habitat enhancements between Head Dike and Public Footpath Heck/15/1. The area would remain open and undeveloped increasing the separation distance between the northern edge of the Energy Park and visual receptors to the north and north west.
- New community orchard (2.15ha) has been proposed in the south western corner of the Energy Park, as a recreational and amenity resource for the local community.

- A currently inaccessible section of Public Footpath Heck/15/1 would be re-linked with Crab Lane reinstating access to the countryside.
- Public access would be further enhanced with an approximately 4km long permissive path from Heck/15/1 providing a circular route across the western part of the Energy Park and towards the recently opened education facility at Elm Grange and new community orchard.

CUMULATIVE AND IN-COMBINATION EFFECTS

Construction Phase

The review of the potential cumulative schemes has included schemes at varying distances and located in varied landscape contexts. Only three cumulative schemes have been considered relevant to this Chapter of the ES (document reference 6.1.6), based on their geographical relationship with the Proposed Development, context, and inter-visibility:

- Land at Little Hale Fen – Screening application ref 21/1337/EIASC.R.
- Vicarage Drove [application ref B/21/O443].
- Land West of Cowbridge Road, Bicker Fen, Boston– Full Planning Application awaiting decision [application ref HO4-0849-22 – South Holland District Council] [application ref B/22/O356 – Boston Borough Council].

This Chapter of the ES (document reference 6.1.6) has concluded that there is potential for significant cumulative landscape character effects upon the LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen. For such significant effects to occur, however, the construction work on the Vicarage Drove scheme [application ref B/21/O443] and scheme at Land West of Cowbridge Road, Bicker Fen, Boston [application ref B/22/O356] would have to coincide with the construction of the Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works.

With regard to the cumulative visual effects, the assessment has concluded that receptors present at one viewpoint, Viewpoint 15, would be potential subject to significant effects due to the proximity to other cumulative schemes and extent of the proposed Off-site Cable Route Corridor.

Operational Phase

This Chapter of the ES (document reference 6.1.6) has concluded that there is no potential for any significant cumulative landscape character effects upon the LT A Reclaimed Fen and more specifically its LCA A1 Holland Reclaimed Fen, and no significant effects upon the Regional LCT The Fens and the associated Fenland Landscape Character Sub-Area, due to the physical and visual segregation, and nature of the proposed Off-site Cable Route Corridor and National Grid Bicker Fen Substation Extension Works. It has been assessed that the landscape between the Energy Park and the identified cumulative sites located across Bicker Fen would retain its agricultural character and would serve as a physical and visual buffer.

No visual receptors have been assessed as experiencing significant visual effects.

CONCLUSION

It is important to acknowledge that significant effects on landscape character and visual amenity are an inherent consequence of a new development of this type and scale. However, in this case, any potential for adverse effects has been judged to be considerably limited by the existing vegetation that characterises the close to medium range landscape. The proposed mitigation planting has the potential to considerably reduce such significant effects, which would be geographically highly limited, both in character and visual terms. Whilst certain elements of the Proposed Development would, inevitably, be more visible, for a scheme of its scale the residual landscape and visual effects arising are considered to be highly limited. Those effects which have been identified as being significant should therefore be balanced against the benefits of the Proposed Development.

RESIDENTIAL VISUAL AMENITY

This Residential Visual Amenity Chapter of the ES (document reference 6.1.7) has sought to determine the visual effects upon the identified residential receptors and whether or not the Energy Park and Bicker Fen Extension Works (inclusive of the Additional Works areas (AW1/AW2)) would result in unacceptable consequences to living conditions such that consent should be refused in the public interest.

BASELINE CONDITIONS

The majority of the residential receptors identified within the defined 1km radii study area gain views towards the surrounding open countryside and the proposed Energy Park, shown in **Figure 8**. Views tend to be gained from front or rear elevations and this reflects the settlement pattern, which is strongly associated with the A17, Sidebar Lane, and Brown's Drove.

Not all of the properties, however, benefit from open and unrestricted views out. The majority of the analysed receptors have their views truncated by other built form, perimeter fencing associated with their property or adjacent dwellings, garden vegetation, roadside vegetation or intervening field boundary vegetation, or are affected by the movement associated with the A17. Therefore, the visual baseline is varied, and the nature and character of the views varies to a degree, particularly from the upper floor windows which tend to be more open. Views gained from side elevations tend to be oblique to very oblique or gained at right angle, thus the appreciation of the Energy Park is greatly diminished.

ASSESSMENT OF POTENTIAL FOR LIKELY SIGNIFICANT EFFECTS

The findings of this Chapter of the ES (document reference 6.1.7) demonstrate that the Energy Park would cause some localised significant visual effects but such effects would not be overbearing. In other words, the properties would continue to provide an attractive outlook and good living environment, from a visual point

of view, albeit affected by the proposed Energy Park. The residents would continue to benefit from views in other directions, gained from the remaining unaffected elevations, and parts of their curtilage not affected by the proposed Energy Park. The properties would remain an attractive place to live when judged objectively, and would not be subject to any overbearing effects.

MITIGATION AND ENHANCEMENT

The embedded mitigation measures include the refinements to the layout of the proposed solar modules (reduction in their extent near No. 1 – 12 Council Houses), and relocation of the proposed Onsite Substation and Energy Storage System away from the identified residential receptors. In addition, the proposed National Grid Bicker Fen Substation Extension would be located towards the **south southern and western sides western-corner** of the existing National Grid Bicker Fen Substation, which benefits from a substantial amount of vegetative cover and limited inter-visibility with the surrounding landscape, and indeed the nearby residential receptors. The change from palisade style fencing to metal mesh perimeter fencing is also considered to be appropriate.

CUMULATIVE AND IN-COMBINATION EFFECTS

Due to the location of the proposed Energy Park, no cumulative or -combination effects have been identified.

CONCLUSION

The proposed Energy Park would cause some highly localised significant visual effects. The residual effects, following the implementation and successful establishment of the proposed additional mitigation measures, **any residual effects are not significant** in EIA terms.

As evidenced this Chapter of the ES, the visual amenity of the identified residential receptors would not be unacceptably harmed. The properties would remain an attractive place to live when judged objectively, and would not be subject to any overbearing effects.

- KEY**
- Order Limits
 - Search Area
 - Construction and Operational Compounds
 - Inverters and Transformer Station
 - Onsite Substation / Energy Storage Compound
 - Solar Park Zone Max Height 3.5m
 - Solar Park Zone Max Height 3m
 - Address with no response
 - ◆ Visited Properties

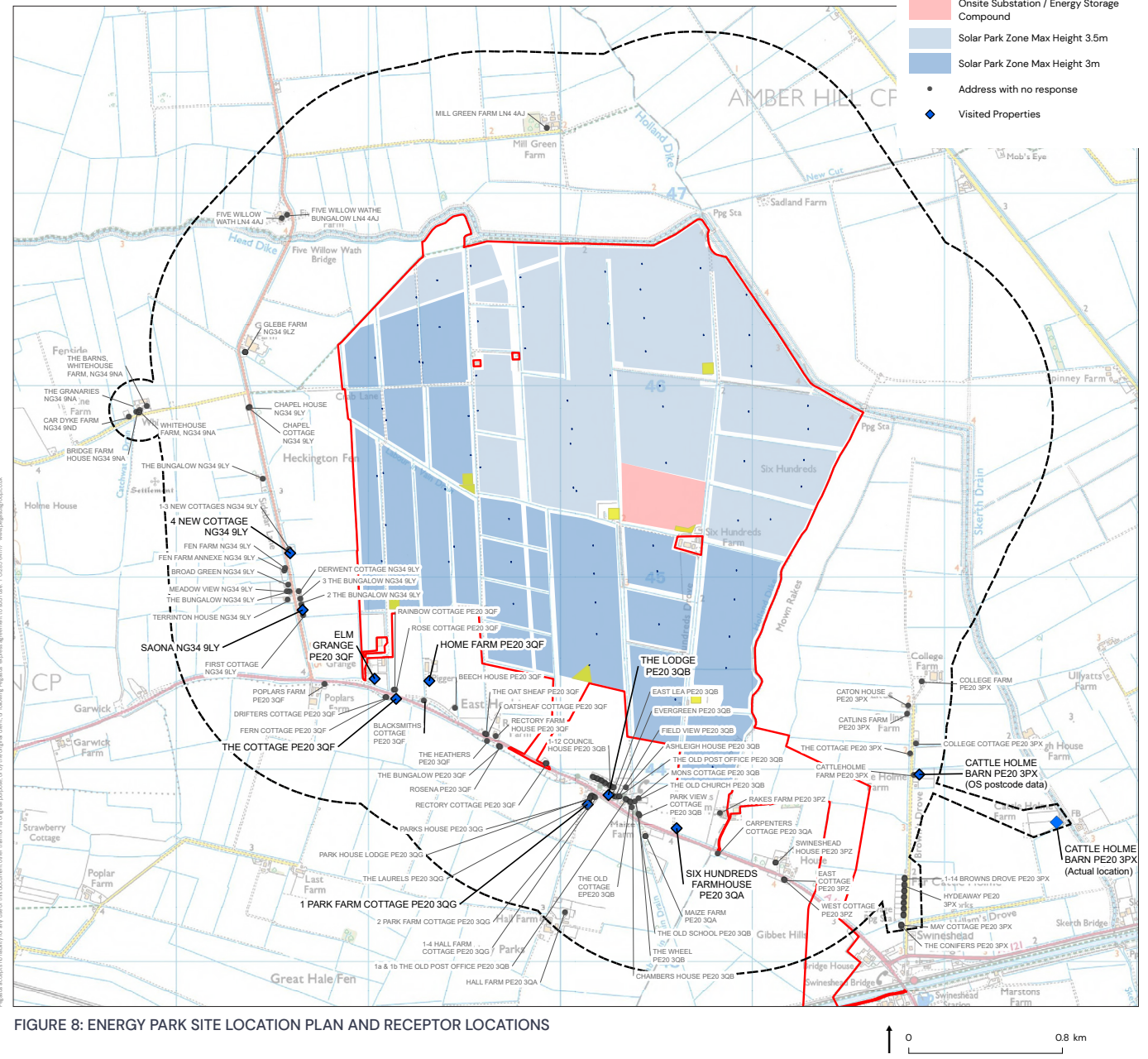


FIGURE 8: ENERGY PARK SITE LOCATION PLAN AND RECEPTOR LOCATIONS

ECOLOGY AND ORNITHOLOGY

The Ecology and Ornithology Chapter of the ES (document reference 6.1.8) has identified and assessed the potential impacts and effects of the proposed development of a 524ha Energy Park and Off-Site Grid Route Corridor and Substation Extension at the National Grid Bicker Fen Substation on ecology, ornithology and nature conservation value during construction, operation, and decommissioning.

Habitat and protected species surveys have been completed on the Energy Park site and the Cable Route Corridor including at Bicker Fen Substation (inclusive of the extra land, AW1 and AW2, required at Bicker Fen Substation).

This Chapter of the ES provides an assessment of the potential direct and indirect effects on nature conservation designations, important habitats and protected species. It considers avoidance design measures, mitigation, management activities to minimise any potential effects and potential enhancements.

BASELINE CONDITIONS

The Energy Park and associated Off-Site Grid Connection will be situated within an intensively farmed landscape of low nature conservation value. The substation extension is within the NGET's National Grid land boundary, alongside the existing Bicker Fen Substation. The large fields associated with the remainder of the Proposed Development are divided by wet ditches and Internal Drainage Board (IDB) managed watercourses. There are no sites of international, national or local importance within or adjacent to the Energy Park site (see Figure 9). There is one Local Wildlife Site (The South Forty Foot Drain) along the route of the Off-Site Grid Connection. The Wash SPA is approximately 15km from the Proposed Development. The data searches did not reveal the presence of any protected species within the Energy Park. There are records of otter from the South Forty Foot Drain.

There are no records of Water Vole within 1.5km of the Proposed Development from the last two years.

There are limited number of gappy species poor hedgerows on the Energy Park site, and a small number trees mainly restricted to plantation woodlands and small number of isolated trees. The wet drainage ditches provide potentially suitable habitats for Water Vole but no evidence of use by this species was found within this area. The drainage ditches within the Energy Park are suitable habitat for otter but no evidence of otter was recorded within this area. There is an active Badger population within the Energy Park site but not along the Off-Site Grid Connection Route. There are a number of common farmland birds using the Energy Park Site. Two species of birds that contribute to the Wash SPA were found wintering in the area including a small flock of pink-footed geese feeding on one section of Grid Connection route. There is a small bat roost in derelict farm building at Six Hundreds farm. There was a low level of bat activity recorded across the site of up 12 species although majority of bat activity was by Common pipistrelle. The trees in the woodland onsite are of insufficient age to provide suitable roots site for bats or nest sites for hole nesting birds. There were no rare arable plant species recorded within the Proposed Development area and typical and common aquatic plants species within the wet ditches through the Proposed Development area.

ASSESSMENT OF POTENTIAL FOR LIKELY SIGNIFICANT EFFECTS

During construction of the Energy Park there is a risk of dust deposit or silt runoff or disturbance to boundary habitat, woodlands, ponds, and wetlands. There is also the risk of disturbance to wintering birds, nesting birds, European Hare, and Badger during construction. With the implementation of mitigation measures embedded into the design of the Proposed Development,

- KEY**
- Order Limits
 - 10km Buffer
 - Local Wildlife Site
 - Site of Nature Conservation Interest
 - Ramsar
 - Local Nature Reserves
 - Special Protection Areas
 - Special Areas of Conservation
 - Sites of Special Scientific Interest
 - National Nature Reserves
 - RSPB Reserve
 - Ancient Woodland

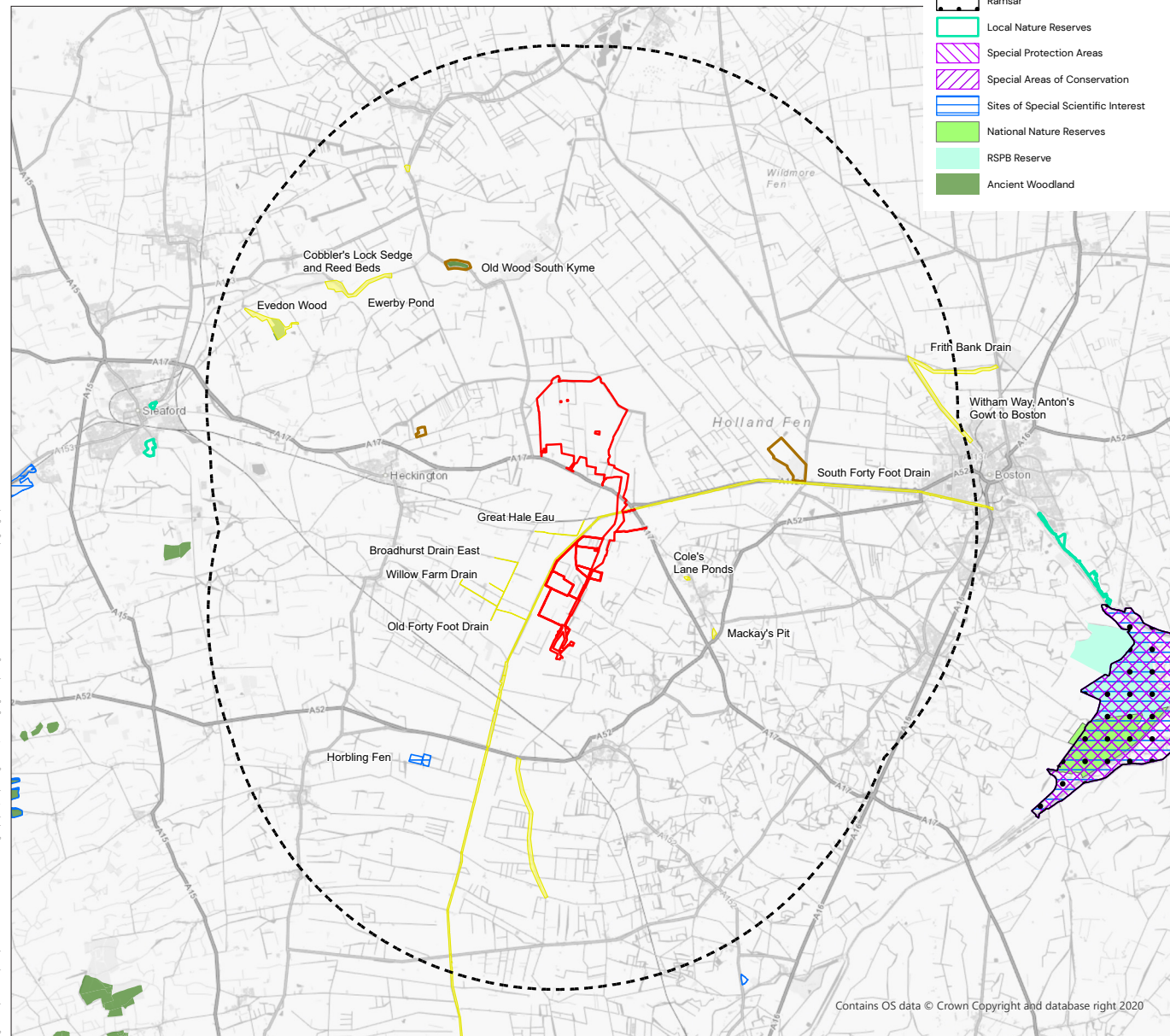


FIGURE 9: STATUTORY AND NON STATUTORY DESIGNATED SITES



discussed in further detail in the following section, no significant adverse effects are anticipated. A significant beneficial effect during construction is anticipated as a result of the cessation of the application of fertilisers, herbicides and pesticides leading to an improvement in the water quality within the drains on the Energy Park site, this is considered to be a significant effect at the local level. The increase in boundary habitat and grasslands as a result of the Energy Park development will create a biodiversity benefit at the local level which is considered a significant beneficial effect in EIA terms.

Once operational the potential effects of the Proposed Development include changes in the level of disturbance to species, loss / gain of habitat, habitat degradation, changing structure of the area, barrier effects of fencing, possible shading and low levels of increased noise from electrical plant. No significant adverse effects are anticipated as a result of the Proposed Development. The Energy Park would result in a number of significant beneficial effects, the change from intensive arable to mosaic to grassland habitat will be a significant biodiversity benefit at least at the local level. There will be a significant beneficial effect as a result of grassland creation and also as a result of increase in boundary habitat. The change from arable land to grassland will also result in the elimination of fertiliser, herbicides and pesticides which is likely to have a significant beneficial effect on wetlands and watercourses in the surrounding area

MITIGATION AND ENHANCEMENT

The initial design and construction methods will ensure negative effects are minimised from the outset. The initial design of the Energy Park ensured a 9m stand off from all IDB watercourses and 8m from all other drains (to the fenceline) which will ensure protection of water vole should they re-colonise the Energy Park Site and

minimise the risk of silt run-off during construction. Directional drilling to lay the new Grid Cable, under the South Forty Foot Drain will ensure no negative effects on the Local Wildlife Site.

The design also includes the creation of 66.73ha of species rich grasslands and 2.15ha of traditional orchard managed specifically for nature conservation, within the Energy Park Site. These high quality grassland will be managed to maximise their value for ground nesting farmland birds, bees, butterfly and other invertebrates. These grasslands will also provide extensive foraging habitat for Brown Hare and Badger.

A number of bat roost boxes of different designs will be placed at appropriate locations around the Energy Park.

Beneath the solar panels 435ha of intensive arable farmland will be converted to sheep pasture. The conversion of the land from intensive arable to grass pasture will reduce the runoff of agri-chemicals and topsoil into in the Wash SPA/SAC/SSSI via the drainage network. There will be an overall significant residual, locally beneficial effect on biodiversity of area. The preliminary Net Biodiversity Gain calculation will achieve the minimum 10% net gain in line with legislation. The Proposed Development is likely to deliver a greater biodiversity net gain than 10%.

The implementation of a comprehensive Construction and Environmental Management Plan (CEMP) will ensure there is no accidental damage to any hedgerow, woodland or watercourses during construction. The implementation of this CEMP will ensure there is no significant disturbance or risk of injury or mortality of breeding farmland birds, disturbance to wintering wetland birds or disturbance and risk of injury to Bats, Badger or European Hare.

CUMULATIVE AND IN-COMBINATION EFFECTS

A review and assessment of other renewable projects in the area has identified no significant cumulative negative effects. Intensive agriculture and climate change have been identified by the UK State of Nature Report as the most significant pressure on wildlife in the UK today. The creation of large areas of renewable energy generation and large area of species rich grassland will lead to a net biodiversity gain of over 10%.

CONCLUSION

The majority of the land is considered to be of low nature conservation value. Any temporary disturbance or risk of harm can be minimised through the implementation of a comprehensive CEMP. The initial design of Energy Park and on-going management will ensure that there is an overall biodiversity gain, and **no residual significant effects**.

HYDROLOGY, HYDROGEOLOGY, FLOOD RISK AND DRAINAGE

This Chapter of the ES (document reference 6.1.9) has set out the assessment of likely significant effects of the Proposed Development upon hydrology, hydrogeology, flood risk and drainage arising from the construction, operation and decommissioning of the Proposed Development.

The assessment was supported by the collection and interpretation of data and information requested from the Environment Agency (EA), Black Sluice Internal Drainage Board (BSIDB) and North Kesteven District Council (NKDC). This information has been used to characterise the baseline water environment and identify receptors.

BASELINE CONDITIONS

The Proposed Development is situated on the Lincolnshire Fens, a coastal plain in the east of England which comprises a large area of broad, flat marshland.

The principal watercourses in the area are the River Witham and South Forty Foot Drain, located approximately 4km and 1.5km to the east and south of the proposed Energy Park respectively. Both are classified as Main River and therefore under the jurisdiction of the EA. The Energy Park itself is bound along the northern boundary by the Head Dike/Skerth Drain (which is also classified as Main River) and the Energy Park site area is bisected by a number of ditches/drains, some of which are operated and maintained by the BSIDB. Water levels within the network of ditches/drains are managed through pumping to the Head Dike/Skerth Drain.

The Energy Park Site is currently in agricultural use and therefore comprises permeable surfaces, such that surface water run-off generally infiltrates into the ground or is routed to the various ditches/drains that bisect the site. Similarly, the Off-site Cable Route Corridor traverses an area characterised by agriculture.

According to the EA's flood map, the majority of the Energy Park Site is located within Flood Zone 3 (High Probability – land having a 1 in 100 or greater annual probability of fluvial flooding) and benefits from flood defences offering a 1 in 10-year standard of protection.

The Off-site Cable Route Corridor and National Grid Bicker Fen Substation are also shown to lie within Flood Zone 3.

The EA 'Flood Risk from Surface Water Map' shows that the majority of the Energy Park and the Off-site Cable Route Corridor and National Grid Bicker Fen Substation are at 'Very Low' risk of surface water flooding.

The EA 'Flood Risk from Reservoirs Map' shows the area that may be affected by flooding as a result of a breach of a large, raised reservoir i.e. capable of storing over 25,000 cubic metres of water above the natural level of any part of the surrounding land. According to EA records, the nearest reservoir is located approximately 8km to the west of the Energy Park, between Heckington and Sleaford. The EA's map shows that, when river levels are normal, only limited and localised areas along the northern boundary of the Energy Park adjacent to Head Dike are affected by reservoir flooding. The Off-site Cable Route Corridor and National Grid Bicker Fen Substation are unaffected by reservoir flooding when river levels are normal.

British Geological Survey mapping indicates that the Energy Park, Off-site Cable Route Corridor and National Grid Bicker Fen Substation are entirely underlain by superficial and bedrock deposits comprising predominantly low permeability clay. EA aquifer designation maps categorise both the superficial deposits and bedrock deposits as 'unproductive' (i.e. areas comprised of rocks that have negligible significance for water supply or baseflow to rivers, lakes and wetlands). The completed ground investigation did

encounter layers of granular material within the tidal flat deposits which contained groundwater, however these layers are limited in extent and unlikely to contain significant volumes of groundwater.

The Proposed Development lies within the 'Black Sluice IDB draining to the South Forty Foot Drain Water Body', which is designated as 'heavily modified' (substantially changed in character as a result of physical alterations by human activity). The environmental (Water Framework Directive) objective for the water body is to achieve 'good ecological potential'. The overall water body classification is currently 'Moderate' potential (Cycle 2, 2019).

ASSESSMENT OF POTENTIAL FOR LIKELY SIGNIFICANT EFFECTS

The assessment found that construction activities have the potential to impact upon the surface water drainage regime and increase surface water run-off from the Proposed Development. Similarly, the assessment identified the potential for construction activities to give rise to the contamination of surface water resulting from spilled hydrocarbons/petrochemicals from construction plant and the mobilisation of silts and contaminants during soil stripping and earthworks operations, potentially leading to increased silt loading in watercourses.

The assessment also noted that construction works in close proximity to the flood defences have the potential to affect the stability of the embankment and therefore the structural integrity of the defences. Also, floodplain storage and flood flows/flood routing processes may be affected as a result of construction activities and earthworks operations within the floodplain, such that there is potential to increase flood risk locally and downstream.

However, the assessment found that these likely effects are Not Significant, on account of 'mitigation by design'/ embedded mitigation measures that are either 'built-in' to the proposals from the outset or secured through a DCO requirement, these embedded mitigation measures are detailed in the following section.

Potential construction phase effects upon groundwater aquifers were found to be Not Significant, principally on account of the low permeability of the ground and the unproductive nature of the superficial and shallow bedrock aquifers.

During the operational phase of the Proposed Development, the assessment found that an increase in the impermeable area within the Energy Park Site has the potential to increase surface water run-off to the adjacent drains, potentially increasing flood risk elsewhere. Similarly, the assessment identified the potential for the contamination of surface water entering the local surface water drains, resulting from the flushing of silts and hydrocarbons from areas of hardstanding. However, the assessment found that these likely effects are Not Significant, on account of 'mitigation by design'/ embedded mitigation measures that are either 'built-in' to the proposals from the outset or secured through a DCO requirement.

The assessment also notes that the raising of ground levels to locate flood-sensitive infrastructure above the flood level has the potential to reduce the volume of storage available within the floodplain. However, the assessment notes that any such ground raising would be very small scale and localised and located within a significant expanse of floodplain. On this basis, it is concluded that the likely effects are Not Significant.

Potential operational phase effects upon groundwater aquifers are found to be Not Significant, principally on account of the low permeability of the ground and the unproductive nature of the aquifers.

The electrical connection to the National Grid Bicker Fen Substation comprises an underground cable that would not require water, nor be sensitive to flood risk. The assessment therefore concluded that, during the operational phase, it would not give rise to impacts upon hydrology, hydrogeology, flood risk and drainage. **The assessment notes that the Bicker Fen Substation extension works will give rise to an increase in the impermeable area within the catchment, potentially increasing surface water run-off to the adjacent drains and increasing flood risk to existing development/ infrastructure/third party assets/land downstream during operation. However, the assessment finds that these likely effects are Not Significant, on account of 'mitigation by design'/embedded mitigation measures that are either 'built-in' to the proposals from the outset or secured through a DCO requirement.**

MITIGATION AND ENHANCEMENT

Potential effects arising from construction of the Energy Park, off-site cable route and works at the Bicker Fen Substation are likely to be localised and temporary and controlled by embedded mitigation measures. The effects are therefore Not Significant and there is no requirement for additional mitigation measures.

With the implementation of embedded mitigation measures, such as the requirement for a Construction Environmental Management Plan (CEMP) detailing best practice methods (appropriate storage of chemicals and site preparation) to be adopted during the construction phase and the use of surface water management infrastructure once operational, the effects associated

with operation of the Energy Park and National Grid Bicker Fen Substation are Not Significant. On this basis, there is no requirement for additional mitigation measures over and above those identified.

The electrical connection within the limits of the Off-site Cable Route Corridor comprises an underground cable such that, during the operational phase, it would not give rise to impacts upon hydrology, hydrogeology, flood risk and drainage.

At the end of its operational life, the decommissioning of the Energy Park is considered to have similar effects upon the water environment as those during the construction stage and, therefore, similar measures to reduce effects are likely to be proposed, such as the implementation of a CEMP. On this basis, it is concluded that there is unlikely to be a requirement for additional mitigation measures.

At the end of its operational life, it is anticipated that the off-site electrical cabling within the limits of the Off-site Cable Route Corridor would be left in situ, although all above ground works would be removed. As such there would be limited decommissioning works and therefore limited or no potential effects upon hydrology, hydrogeology, flood risk and drainage.

CUMULATIVE AND IN-COMBINATION EFFECTS

The assessment notes that construction and operation of the Proposed Development could occur simultaneously with 'Other Developments' located in the vicinity. Other proposed developments will be subject to compliance with local and national planning policy and therefore required to demonstrate (amongst other matters) that flood risk is not increased, that the surface water drainage regime and surface water quality are not adversely affected and that groundwater aquifers are not affected. Without demonstrating compliance, DCO consent (or planning permission, as relevant) would not be granted and construction could not commence. On this basis, these committed development schemes will not give rise to any significant effects and there will be no cumulative effects within the wider catchment.

CONCLUSION

It is concluded that potential effects arising from construction of the Proposed Development are likely to be localised and temporary and controlled by embedded mitigation measures. There are **no residual significant effects** from the Proposed Development.

With the implementation of embedded mitigation measures, the residual effects associated with operation of the Energy Park are Negligible and Not Significant. The electrical connection to the National Grid Bicker Fen Substation comprises an underground cable that would not give rise to impacts upon hydrology, hydrogeology, flood risk and drainage during the operational phase.

CULTURAL HERITAGE

This Cultural Heritage Chapter of the ES (document reference 6.1.10) has considered potential effects upon the significance of cultural heritage receptors. Buried archaeological remains, earthworks, buildings / structures, and all other aspects of the historic environment have all been considered.

BASELINE CONDITIONS

No designated heritage assets are located within the land being considered for the Proposed Development, as shown in **Figure 10**.

Known and potential non-designated heritage assets located within the Energy Park comprise the upstanding structures of a derelict 19th-century outfarm, boundary wall, and drainage pump; and the buried archaeological remains of two pits and a tree throw containing Mesolithic/Neolithic flints, a Roman saltern and briquetage deposits elsewhere, ditches suggestive of Roman agricultural activity as well as nearby occupation, undated ditches and gullies, a post-medieval duck decoy, and post-medieval and modern outfarms and field boundaries.

Known and potential non-designated heritage assets located within the Cable Route Corridor comprise buried remains of enclosures and linear features of possible Roman origin to the south-west of Royalty Farm and to the east of Villa Farm.

The Roman features in the Energy Park and the Cable Route Corridor represent non-designated heritage assets of up to regional significance. In the Energy Park, the post-medieval duck decoy represents a non-designated heritage asset of local to regional significance; while the upstanding historic structures

represent non-designated heritage assets of local significance. Buried historic agricultural remains in the Energy Park and the Cable Route Corridor are not considered heritage assets.

Detailed setting assessments have identified no harm to the significance of any Scheduled Monument, Listed Building or Conservation Area as arising from the Proposed Development; but minor harm to the significance of the non-Listed Mill Green Farmhouse.

ASSESSMENT OF POTENTIAL FOR LIKELY SIGNIFICANT EFFECTS

The potential for significant cultural heritage effects has been identified for the construction and decommissioning stages of the Proposed Development. These effects relate to the possible destruction of known buried archaeological remains of prehistoric and Roman activity. Which could be considered significant in EIA terms, however this is a worst-case scenario, as trial trench evaluation has not yet been completed for the Cable Route Corridor. However, with the implementation of the mitigation measures discussed below the